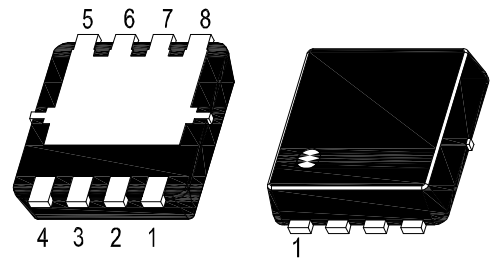
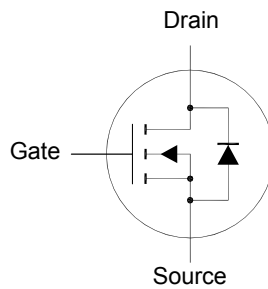


SFTN6904MP

N-Channel Enhancement Mode MOSFET



1. Source 2. Source 3. Source 4. Gate
5. Drain 6. Drain 7. Drain 8. Drain
DFN3030 Plastic Package

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Drain-Gate Voltage	V_{GS}	± 20	V
Drain Current - Continuous	I_D	$T_C = 25^\circ\text{C}$ 42 $T_C = 100^\circ\text{C}$ 26	A
Drain Current – Pulse ¹⁾	I_{DM}	168	A
Power Dissipation	P_D	52	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance - Junction to Ambient	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Thermal Resistance - Junction to Case	$R_{\theta JC}$	2.4	$^\circ\text{C}/\text{W}$

¹⁾ Repetitive Rating : Pulsed width limited by maximum junction temperature.

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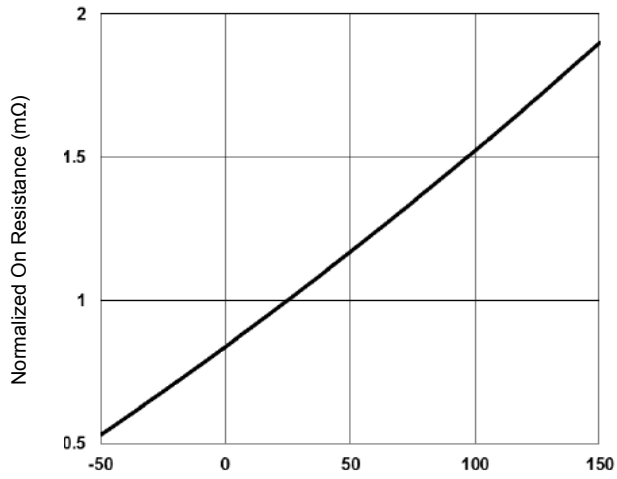
Characteristics at $T_J = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at $I_D = 250 \mu\text{A}$	BV_{DSS}	60	-	-	V
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	V_{GSth}	1.2	-	2.2	V
Drain-Source Leakage Current at $V_{DS} = 60 \text{ V}, T_J = 25^\circ\text{C}$ at $V_{DS} = 48 \text{ V}, T_J = 125^\circ\text{C}$	I_{DSS}	-	-	1 10	μA
Gate-Source Leakage Current at $V_{GS} = \pm 20 \text{ V}$	I_{GSS}	-	-	± 100	nA
Drain-Source On-State Resistance at $V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$ at $V_{GS} = 4.5 \text{ V}, I_D = 8 \text{ A}$	$R_{DS(on)}$	-	-	12 15	m Ω
Forward Transconductance at $V_{DS} = 10 \text{ V}, I_D = 6 \text{ A}$	$ g_{FS} $	-	11.7	-	S
Input Capacitance at $V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$	C_{iss}	-	-	3050	pF
Output Capacitance at $V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$	C_{oss}	-	-	240	pF
Reverse Transfer Capacitance at $V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$	C_{rss}	-	-	120	pF
Turn-On Delay Time at $V_{GS} = 10 \text{ V}, V_{DD} = 15 \text{ V}, R_G = 6 \Omega, I_D = 1 \text{ A}$	$t_{d(on)}$	-	-	18	ns
Turn-On Rise Time at $V_{GS} = 10 \text{ V}, V_{DD} = 15 \text{ V}, R_G = 6 \Omega, I_D = 1 \text{ A}$	t_r	-	-	54	ns
Turn-Off Delay Time at $V_{GS} = 10 \text{ V}, V_{DD} = 15 \text{ V}, R_G = 6 \Omega, I_D = 1 \text{ A}$	$t_{d(off)}$	-	-	86	ns
Turn-Off Fall Time at $V_{GS} = 10 \text{ V}, V_{DD} = 15 \text{ V}, R_G = 6 \Omega, I_D = 1 \text{ A}$	t_f	-	-	21	ns

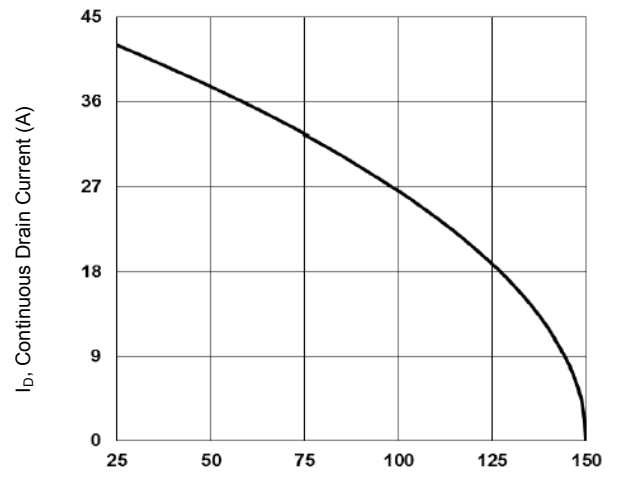
Drain-Source Diode Characteristics and Maximum Ratings

Parameter	Symbol	Max.	Unit
Continuous Source-Drain Diode Current	I_S	42	A
Pulsed Diode Forward Current ¹⁾	I_{SM}	84	A
Body Diode Voltage ¹⁾ at $I_S = 1 \text{ A}, T_J = 25^\circ\text{C}$	V_{SD}	1	V

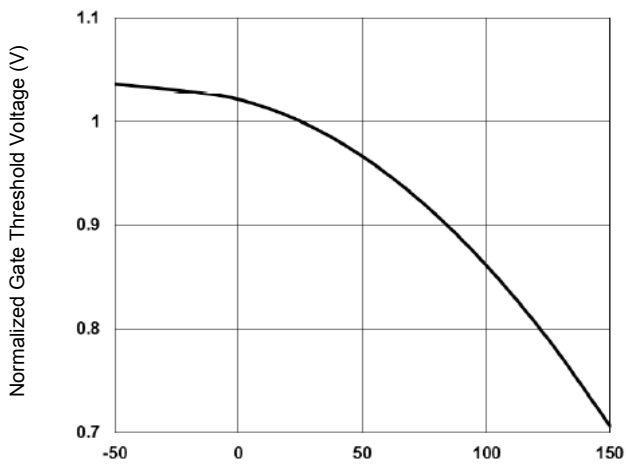
¹⁾ The data tested by pulsed , pulse width $\cong 300 \mu\text{s}$, duty cycle $\cong 2\%$.



T_j , Junction Temperature (°C)
Figure 1. Normalized $R_{DS(on)}$ vs.



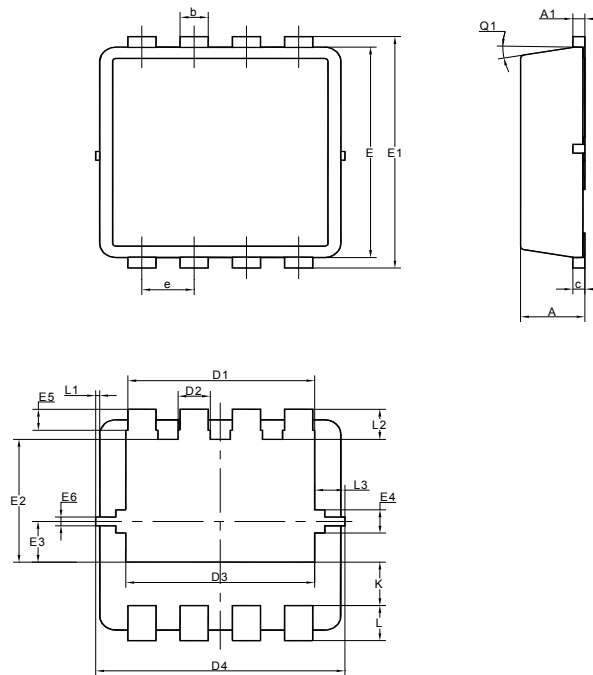
T_c , Case Temperature (°C)
Figure 2. Continuous Drain Current vs.



T_j , Junction Temperature (°C)
Figure 3. Normalized V_{th} vs.

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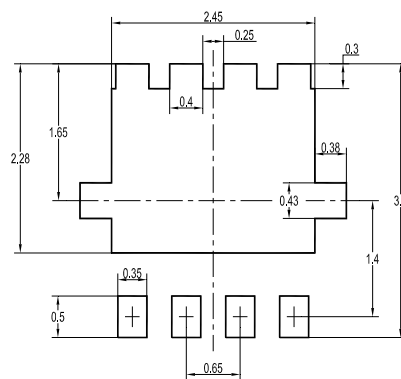
DFN3030 Package Outline Dimensions (Units: mm)



UNIT	A	A1	b	c	D	D1	D2	D3	D4	E	E1	E2	E3
mm	0.9	0.05	0.35	0.25	3.1	2.45	0.5	2.7	3.2	3.1	3.3	1.85	0.68
	0.7	0	0.24	0.1	2.9	2.25	0.3	2.5	3	2.9	3.1	1.65	0.48

UNIT	E4	E5	E6	e	K	L	L1	L2	L3	θ_1
mm	0.43	0.4	0.175	0.7	0.72	0.5	0.1	0.53	0.475	12°
	0.23	0.2	0.075	0.6	0.52	0.3	0	0.33	0.275	0°

Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
DFN3030	8	4 ± 0.1	0.157 ± 0.004	330	13	3,000

Winning Team
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Dated: 08/09/2016